Amendments to the Claims

This listing of claims, if entered, will replace all prior versions and listings of claims in the above-identified application.

Listing of Claims

1.   (Currently Amended) A method ~~of performing cascaded replication~~ comprising:

    asynchronously replicating data to be written to a data volume of a first node to a data volume of a second node; and

    replicating data to be written to said data volume of said second node to a data volume of a third node, wherein said replicating data to be written to said data volume of said second node comprises periodically replicating, at a first frequency, said data to be written to said data volume of said second node to said data volume of said third node; and

    replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said replicating data to be written to said data volume of said third node comprises periodically replicating, at a second frequency, said data to be written to said data volume of said third node to said data volume of said fourth node; wherein

    said first frequency is higher than said second frequency.

2.   (Cancelled)

            Application No.: 10/652,326

3.   **(Currently Amended)** A method ~~of performing cascaded replication~~ comprising:

asynchronously replicating data to be written to a data volume of a first node to a data volume of a second node; and

replicating data to be written to said data volume of said second node to a data volume of a third node, wherein said replicating data to be written to said data volume of said second node comprises asynchronously replicating said data to be written to said data volume of said second node to said data volume of said third node; and

replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said replicating data to be written to said data volume of said third node comprises periodically replicating, at a first frequency, said data to be written to said data volume of said third node to said data volume of said fourth node; and

replicating data to be written to said data volume of said fourth node to a data volume of a fifth node, wherein said replicating data to be written to said data volume of said fourth node comprises periodically replicating, at a second frequency, said data to be written to said data volume of said fourth node to said data volume of said fifth node, wherein

said first frequency is higher than said second frequency.

4.   (Cancelled)

5.   (Previously Presented) The method of claim 3, wherein,

said asynchronously replicating data to be written to said data volume of said first node comprises, asynchronously replicating data to be written to a data volume of a primary node to a data volume of an intermediate node; and

said asynchronously replicating data to be written to said data volume of said second node comprises, asynchronously replicating data to be written to said data volume of said intermediate node to a data volume of a secondary node.

Application No.: 10/652,326

6.   (Previously Presented) The method of claim 5, wherein said asynchronously replicating data to be written to said data volume of said intermediate node comprises asynchronously replicating data to be written to said data volume of said intermediate node to a data volume of each of a plurality of secondary nodes.

7.   (Previously Presented) The method of claim 3, wherein,

said asynchronously replicating data to be written to said data volume of said first node comprises asynchronously replicating data to be written to said data volume of said first node to said data volume of said second node using a first data link coupled between said first node and said second node;

said asynchronously replicating data to be written to said data volume of said second node comprises asynchronously replicating data to be written to said data volume of said second node to said data volume of said third node using a second data link coupled between said second node and said third node; and

said first data link has a higher bandwidth than said second data link.

8.   (Previously Presented) An apparatus comprising:

a first device for asynchronously replicating data to be written to a data volume of a first node to a data volume of a second node; and

a second device for replicating data to be written to said data volume of said second node to a data volume of a third node, wherein said replicating data to be written to said data volume of said second node comprises periodically replicating, at a first frequency, said data to be written to said data volume of said second node to said data volume of said third node; and

a third device for replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said replicating data to be written to said data volume of said third node comprises periodically replicating, at a second frequency, said data to be written to said data volume of said third node to said data volume of said fourth node, wherein

said first frequency is higher than said second frequency.

9.   (Cancelled)

Application No.: 10/652,326

10.   (**Currently Amended**) An apparatus ~~configured to perform cascaded replication~~ comprising:

    a first device for asynchronously replicating data to be written to a data volume of a first node to a data volume of a second node; and

    a second device for replicating data to be written to said data volume of said second node to a data volume of a third node, wherein said second device for replicating data to be written to said data volume of said second node comprises a device for asynchronously replicating said data to be written to said data volume of said second node to said data volume of said third node; and

    a third device for replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said third device for replicating data to be written to said data volume of said third node comprises a device for periodically replicating, at a first frequency, said data to be written to said data volume of said third node to said data volume of said fourth node; and

    a fourth device for replicating data to be written to said data volume of said fourth node to a data volume of a fifth node, wherein said fourth device for replicating data to be written to said data volume of said fourth node comprises a device for periodically replicating, at a second frequency, said data to be written to said data volume of said fourth node to said data volume of said fifth node, wherein said first frequency is higher than said second frequency.

11.   (Cancelled)

12.   (Previously Presented) The apparatus of claim 10, wherein,

    said first device for asynchronously replicating data to be written to said data volume of said first node comprises,

        a device for asynchronously replicating data to be written to a data volume of a primary node to a data volume of an intermediate node; and

    said second device for asynchronously replicating data to be written to said data volume of said second node comprises,

        a device for asynchronously replicating data to be written to said data volume of said intermediate node to a data volume of a secondary node.

Application No.: 10/652,326

13. (Previously Presented) The apparatus of claim 12, wherein said device for asynchronously replicating data to be written to said data volume of said intermediate node comprises a device for asynchronously replicating data to be written to said data volume of said intermediate node to a data volume of each of a plurality of secondary nodes.

14. (Previously Presented) The apparatus of claim 10, wherein,

said first device for asynchronously replicating data to be written to said data volume of said first node comprise a device for asynchronously replicating data to be written to said data volume of said first node to said data volume of said second node using a first data link coupled between said first node and said second node;

said means for asynchronously replicating data to be written to said data volume of said second node comprises a device for asynchronously replicating data to be written to said data volume of said second node to said data volume of said third node using a second data link coupled between said second node and said third node; and

said first data link has a higher bandwidth than said second data link.

15. (Previously Presented) A set of machine-readable mediums collectively having a plurality of instructions executable by two or more machines, wherein said plurality of instructions when executed cause said two or more machines to perform a method comprising:

asynchronously replicating data to be written to a data volume of a first node to a data volume of a second node; and

replicating data to be written to said data volume of said second node to a data volume of a third node, wherein said replicating data to be written to said data volume of said second node comprises periodically replicating, at a first frequency, said data to be written to said data volume of said second node to said data volume of said third node; and

replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said replicating data to be written to said data volume of said third node comprises periodically replicating, at a second frequency, said data to be written to said data volume of said third node to said data volume of said fourth node; wherein

said first frequency is higher than said second frequency.

16.   (Cancelled)

17.   (Previously Presented) A set of machine-readable mediums collectively having a plurality of instructions executable by two or more machines, wherein said plurality of instructions when executed cause said two or more machines to perform a method comprising:

asynchronously replicating data to be written to a data volume of a first node to a data volume of a second node; and

replicating data to be written to said data volume of said second node to a data volume of a third node, wherein said replicating data to be written to said data volume of said second node comprises asynchronously replicating said data to be written to said data volume of said second node to said data volume of said third node; and

replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said replicating data to be written to said data volume of said third node comprises periodically replicating, at a first frequency, said data to be written to said data volume of said third node to said data volume of said fourth node; and

replicating data to be written to said data volume of said fourth node to a data volume of a fifth node, wherein said replicating data to be written to said data volume of said fourth node comprises periodically replicating, at a second frequency, said data to be written to said data volume of said fourth node to said data volume of said fifth node, wherein

said first frequency is higher than said second frequency.

18.   (Cancelled)

19. (Previously Presented) The set of machine-readable mediums of claim 17, wherein,

said asynchronously replicating data to be written to said data volume of said first node

comprises,

replicating data to be written to a data volume of a primary node to a data volume

of an intermediate node; and

said asynchronously replicating data to be written to said data volume of said second

node comprises,

asynchronously replicating data to be written to said data volume of said

intermediate node to a data volume of a secondary node.

20. (Previously Presented) The set of machine-readable mediums of claim 19, wherein said asynchronously replicating data to be written to said data volume of said intermediate node comprises asynchronously replicating data to be written to said data volume of said intermediate node to a data volume of each of a plurality of secondary nodes.

21. (Previously Presented) The set of machine-readable mediums of claim 17, wherein,

said asynchronously replicating data to be written to said data volume of said first node

comprises asynchronously replicating data to be written to said data volume of

said first node to said data volume of said second node using a first data link

coupled between said first node and said second node;

said asynchronously replicating data to be written to said data volume of said second

node comprises asynchronously replicating data to be written to said data volume

of said second node to said data volume of said third node using a second data

link coupled between said second node and said third node; and

said first data link has a higher bandwidth than said second data link.

Application No.: 10/652,326

22. - 25 (Cancelled)

26.   (Previously Presented) The method of claim 1 further comprising an act writing the data

to be written to the data volume of the first node to a replication log before asynchronously

replicating the data to be written to the data volume of the first node to the data volume of the

second node.

Application No.: 10/652,326